

We claim:

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1. A process for preparing N-phosphonomethylglycine or a salt thereof by bringing phosphonomethyliminodiacetic acid or a salt thereof into contact with at least one oxygen-containing oxidant in the presence of a heterogeneous catalyst comprising at least one silicate.
2. A process as claimed in claim 1, wherein the oxygen-containing oxidant or oxidants is/are selected from the group consisting of hydroperoxides, gases containing molecular oxygen, oxygen-donating compounds, nitrogen oxides and mixtures of two or more thereof.
3. A process as claimed in claim 1 or 2, wherein the silicate or silicates is/are selected from the group consisting of zeolites, sheet silicates, naturally occurring or synthetically produced clay minerals, clathrasils and mixtures of two or more thereof.
4. A process as claimed in claim 3, wherein the crystalline silicate or silicates is/are selected from the group consisting of zeolites of the structure types ABW, ACO, AEL, AEL, AEN, AET, AFG, AFI, AFN, AFO, AFR, AFS, AFT, AFX, AFY, AHT, ANA, APC, APD, AST, ATN, ATO, ATS, ATT, ATV, AWO, AWW, BEA, BIK, BOG, BPH, BRE, CAN, CAS, CFI, CGF, CGS, CHA, CHI, CLO, CON, CZP, DAC, DDR, DFO, DFT, DOH, DON, EAB, EDI, EMT, EPI, ERI, ESV, EUO, FAU, FER, GIS, GME, GOO, HEU, IFR, ISV, ITE, JBW, KFI, LAU, LEV, LIO, LOS, LOV, LTA, LTL, LTN, MAZ, MCM-22, MEI, MEL, MEP, MER, MFI, MFS, MON, MOR, MSO, MTF, MTN, MTT, MTW, MWW, NAT, NES, NON, OFF, OSI, PAR, PAU, PHI, RHO, RON, RSN, RTE, RTH, RUT, SAO, SAT, SBE, SBS, SBT, SFF, SGT, SOD, STF, STI, STT, TER, THO, TON, TSC, VET, VFI, VNI, VSV, WEI, WEN, YUG, ZON and ITQ-4 and mixtures of two or more thereof.
5. A process as claimed in any of claims 1 to 4, wherein the heterogeneous catalyst further comprises at least one element selected from among the elements of groups Ia, IIa, IIIa, IVa, Va, VIa, VIIa, VIIla, Ib, Iib, IIIb, IVb, Vb, VIb, VIIb of the Periodic Table.

6. A process as claimed in any of claims 1 to 5, wherein the heterogeneous catalyst is regenerated after complete or partial loss of activity and the regenerated heterogeneous catalyst is reused for preparing N-phosphonomethylglycine or a salt thereof from phosphonomethyliminodiacetic acid or a salt thereof.

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